The Monthly Evening Sky Map

A SCIENTIFIC JOURNAL AND EDUCATIONAL GUIDE IN ASTRONOMY FOR THE AMATEUR
Founded in 1905 by Leon Barritt
ALSO A STAR, CONSTELLATION AND PLANET FINDER MAP ARRANGED FOR THE CURRENT MONTHS - MORNING AND EVENING - AND PRACTICAL ANYWHERE IN THE WORLD
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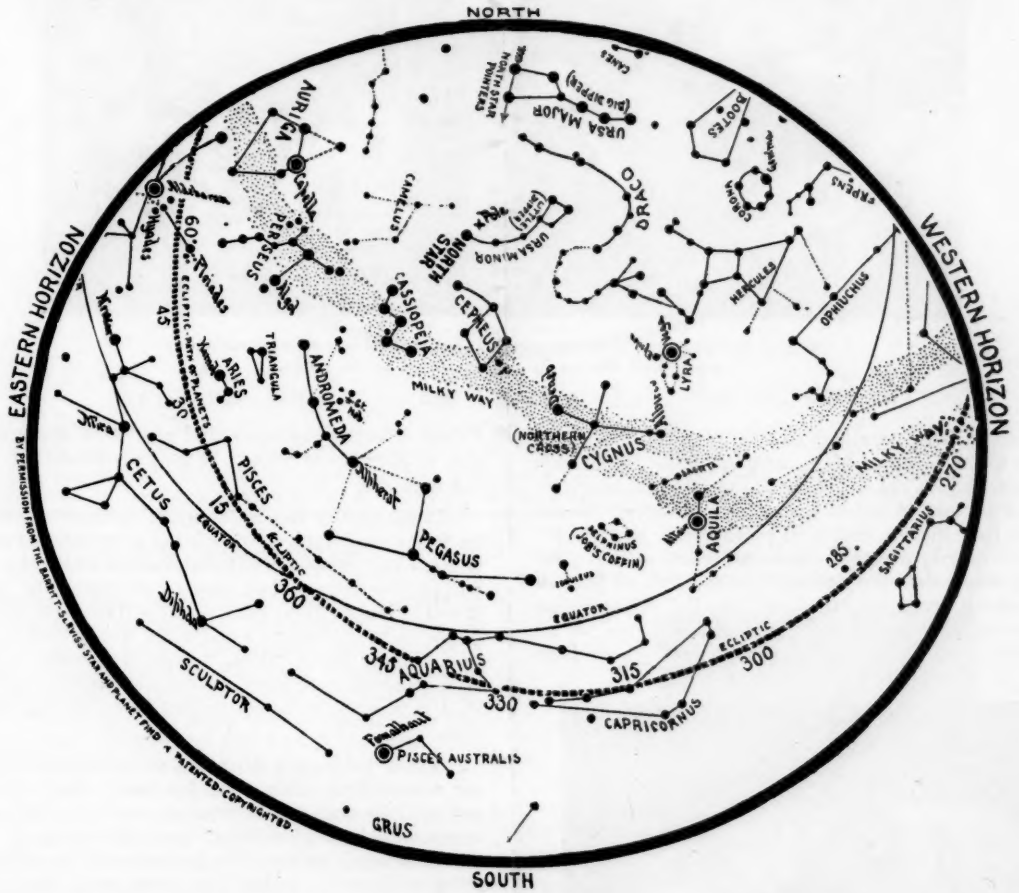
EVENING SKY MAP FOR OCTOBER



AT 9:00 P.M., OCT. 1 8:00 P.M., OCT. 15 7:00 P.M., OCT. 31

Face South and hold the Map overhead, the top North, and you will see the stars and planets just as they appear in the heavens. The arrow through the two stars in the bowl of the Big Dipper points to the North Star, the star at the end of the handle of the Little Dipper.

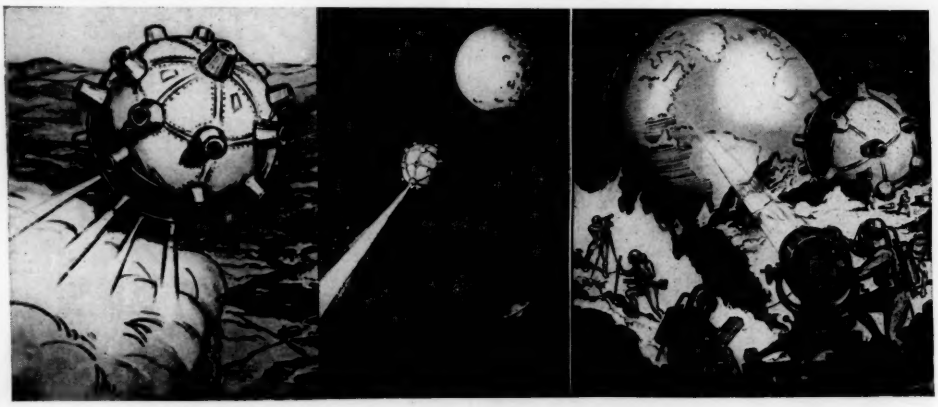
This map is arranged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitude in Europe.

THE DATE BELOW EACH NUMERAL WILL BE FOUND TO BE ONE HOUR EARLIER FOR EACH NUMERAL WEST OF THIS DATE AND AN HOUR LATER FOR EACH NUMERAL EAST.

THE FIRST INVASION OF SPACE

Scientists Readying Man-Made Satellite For Launching By 1958

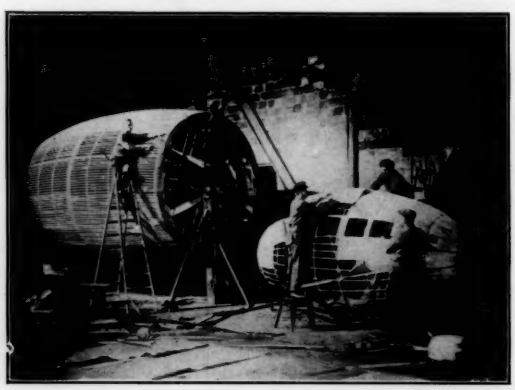
For many years man has hoped to be able to leave the earth's gravitational field and travel across space. The immediate goal has been to reach the Moon, and if that effort should be crowned with success, the next step would be a trip to one of the nearer planets—Mars or Venus. Just to reach the moon would be of inestimable value, because an observatory established on that airless world would benefit from perfect observing conditions, and a relatively small telescope would turn out results forever denied our greatest instruments, situated, as they are, at the bottom of our murky sea of air. In all likelihood, the riddle of Mars, for one, would be resolved in short order.



An "Educated Guess" of some years ago of what the first man-carrying rocketship would look like on its maiden voyage to the Moon.

However, before we leap to true interplanetary travel, whether to the Moon or Mars, many questions would have to be answered. What would happen to a vehicle in space? Would it be blasted to bits by meteoric particles? Would radiation from the Sun destroy its passengers or the vehicle? Just what can we expect to encounter when we leave the earth's protective envelope of air? On the 29th of July, an epoch-making announcement came from the White House in Washington, the ultimate results of which will in all probability determine man's chances of venturing away from the earth into outer space. This terse announcement said: "The President has approved plans by this country for going ahead with the launching of small, unmanned earth-circling satellites as part of the United States' participation in the International Geophysical Year, which takes place between July, 1957, and December, 1958."

Tentatively, plans call for firing a small "satellite"—probably no more than two feet in diameter, but crammed with scientific instruments—to an altitude of two or three hundred miles by multiple-stage rocket, and then giving it a last push which would set it circling the earth at a speed of about 18,000 miles per hour. This speed is well below the earth's "escape velocity" of seven miles per second (25,000 miles per hour) so instead of continuing on out into space, our vehicle would fall into an orbit about the earth and become a satellite. And in all probablity, it could be seen with the naked eye at sunset or sunrise, when its bright reflecting surface would give it an appearance like that of Mercury or Venus! It certainly would be visible in the telescope.



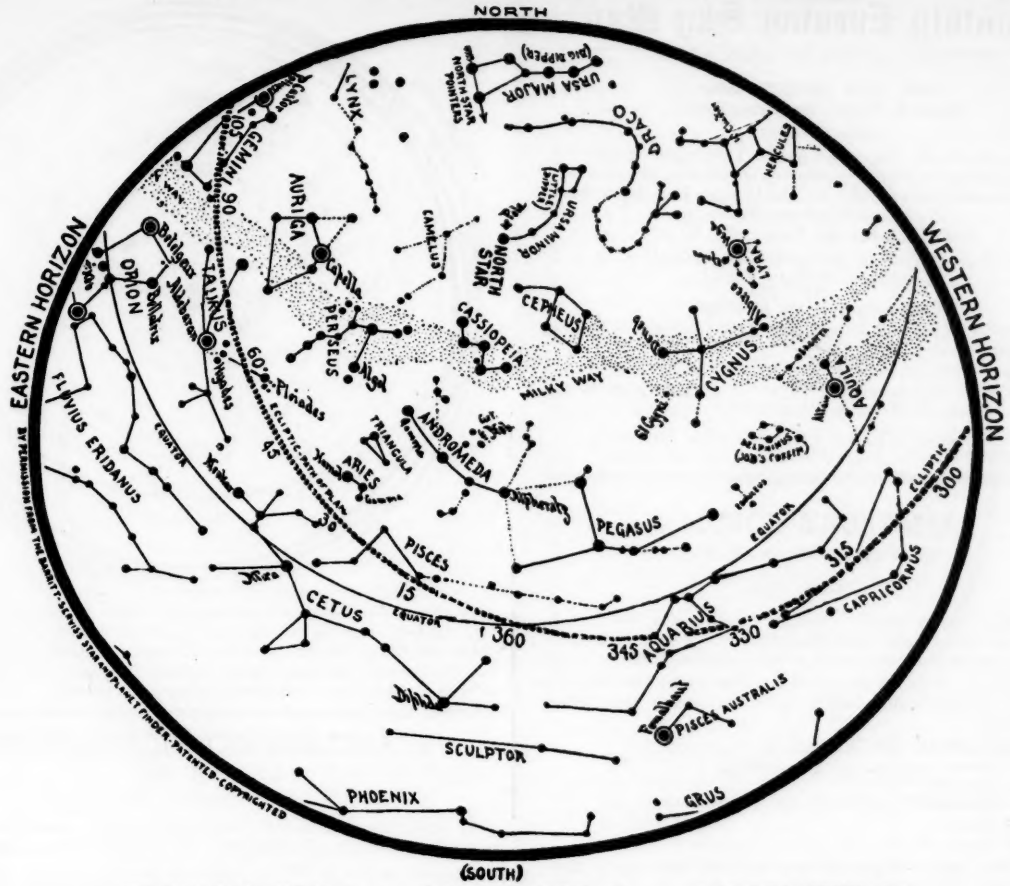
Germany's "Moon Rocket" of 1930—
Experimental design of Dr. Herman Oberth.

In the perfect vacuum of space, our new satellite could circle the earth forever, completing a revolution every hour and one-half; however, at the altitude at which this satellite will revolve, there will be some air resistance, and gradually it will be braked to the point that it will enter the denser part of the earth's atmosphere and suffer meteor-like disintegration. Before this happens, though, instruments will relay vital information to earth, so that our satellite's brief career of days or weeks will provide data never before available to man.

Science has already developed rockets capable of launching our satellite; instruments are ready which will record and relay to earth the information we wish; and now the impetus has been provided to make the dreams of twenty-five years ago a reality. The beginning of the era of space travel is upon us; in less than three years we shall make our first tremendous stride. After that, the possibilities are unlimited.

Your address, as printed on the mailing wrapper, contains your expiration information—the first digit is the *issue number,* followed by the year. For example, "2-57" means that the last issue of the subscription would be the second (April-May-June) of 1957. If there is any discrepancy in expiration, or address, kindly advise.

EVENING SKY MAP FOR NOVEMBER



AT 9:00 P.M., NOV. 1 8:00 P.M., NOV. 15 7:00 P.M., NOV. 30

Face South and hold the Map overhead, the top North, and you will see the stars and planets just as they appear in the heavens. The arrow through the two stars in the bowl of the Big Dipper points to the North Star, the star at the end of the handle of the Little Dipper. This map is arraanged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitudes in Europe.

IS VENUS HABITABLE?

Astronomers have long puzzled over the question of life on Venus, or whether that planet would be able to sustain life in the future. Our nearest major planetary neighbor, at its closest it is only about two-thirds as far away as Mars when that planet is most favorably located. However, Venus is much more difficult to observe than Mars, since Mars presents its full face to the earth when closest, whereas Venus, to the contrary, presents its full face when most remote, and as it nears the earth becomes progressively gibbous, then crescent shaped, and finally, when closest, passes between the Sun and the earth and consequently is dark. Our illustration shows the variation in the apparent size and phases of this planet.

In addition, Venus is so dazzling an object as seen in the telescope that it is best viewed in full daylight, when the light background tends to reduce glare and cause some contrast. In any event, however, its disc is remarkably free of detail. We know the planet has a dense atmosphere because when it occults (passes over) a star, that star disappears gradually, whereas an occultation by the airless Moon is instantaneous. Further, during the rare transits of Venus over the face of the Sun, the planet is encircled by a bright ring of light. Some observers, notably Schiaparelli, came to the conclusion that the planet keeps one side turned toward the Sun always, making the periods of rotation and

Reduction in illuminated surface as Venus nears the Earth.

revolution the same, or about 225 days. Another theory puts the axis of rotation very nearly in the plane of the planet's orbit, so in another way the same face is presented toward the Sun. Still another school of thought, advanced by Cassini in the 18th century, places the period of rotation at about the same as the earth's, or about twenty-four hours. As a consequence of these varying views, opinions of surface conditions on Venus vary just as sharply. One group holds that the planet is a waterless, sandstorm-racked desert; another, that it is a steamy, dinosaur-age swamp.

(continued on page 11)

The

Monthly Evening Sky Map

FOUNDED IN 1905 BY LEON BARRITT

MRS. LEON BARRITT, Editor
Irving L. Meyer, Managing Editor

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All time is expressed in Eastern (75th Meridian) Standard Time. Add five hours to convert to Greenwich Civil Time.

AMATEUR'S FORUM

BY IRVING L. MEYER, M. S.

OCTOBER 1955

THE SUN: moves mostly through Virgo during the month, winding up close to the Libra boundary. Its geocentric distance decreases from 93.0 million miles to 92.2 million miles.

THE MOON: is at perigee (closest to the earth) the 5th, at a distance of 228,000 miles, and is farthest (apogee) the 21st at 252,000 miles.

The Moon's Phases (E.S.T.):

Full Moon	October 1 at 2:17 pm
Last Quarter	8 at 9:04 am
New Moon	15 at 2:32 pm
First Quarter	23 at 6:04 pm
Full Moon	31 at 1:04 am

MERCURY: spends the month in Virgo, retrograding for most of the period. It is in inferior conjunction with the Sun on the 13th, and thereupon enters the morning sky. By the 29th it achieves greatest elongation west of the Sun (18° 33'), which means that for a few days around this date it will be visible low in the east in the morning twilight, shining as a bright (magnitude -0.2) star. In the telescope it will appear half illuminated, looking like the Moon at quarter phase, and will have an apparent diameter of 7". It is closest to the earth the 12th at 61 million miles.

VENUS: is in the evening sky, and travels from Virgo into Libra. It can be observed right after sunset, low in the west, but only because it is such a brilliant object--magnitude -3.4. It is not well placed for observation. Distance the 1st is 158 million miles, and the 31st is 152 million miles.

MARS: is in the morning sky, moving south-eastwardly through Virgo the entire month. Though it can be seen in the pre-dawn sky, it is so remote that it is not well situated for observation. Distance is slowly decreasing--from 243 million miles the 1st to 232 million miles the 31st.

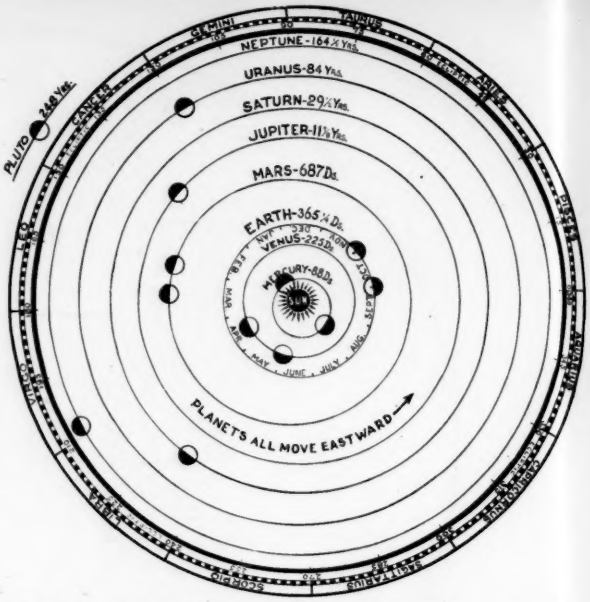
JUPITER: is close to Regulus in Leo, in the morning sky. It is pretty well placed for observation, though it rises well after midnight. It is very bright (magnitude -1.5), and its large 34" diameter disc can be discerned even with opera glasses. It is becoming better placed for observation, as opposition takes place in the spring of 1956. Distance the 15th is 542 million miles.

SATURN: is in Libra in the evening sky, but is rapidly being overtaken by the Sun. It is poorly placed for observation. On the 30th it is in conjunction with Venus and is about 2° to the north. It is much fainter than Venus. Distance the 15th is 1002 million miles.

URANUS: is close to the star cluster Praesepe in Cancer. It rises at about midnight, and is becoming increasingly better placed for observation. At magnitude 6, it is on the borderline of naked eye visibility; it can, however, be seen with the unaided eye on a very clear, moonless night. It is 1744 million miles away the 15th.

NEPTUNE: is too close to the Sun to be observable. It is in conjunction with the Sun the 21st, and thereafter enters the morning sky in Virgo. It is farthest from the earth the 21st at 2909 million miles.

HELIOCENTRIC POSITIONS OF THE PLANETS, OCTOBER



The planets are shown in their respective orbits. Two positions, one for the first, and one for the last day of the month are given for Mercury, Venus, Earth, and Mars. The arrow indicates the last day of the month. Jupiter, Saturn, Uranus, Neptune, and Pluto are shown in their mean position for the current month.

PLANETARY CONFIGURATIONS

OCTOBER 1955

Eastern Standard Time

Oct. 1—	9:00 am	Mercury stationary in Right Ascension
8—	4:00 am	Conjunction, Mercury and Venus; Mercury south 4° 18'
9—	4:39 pm	Conjunction, Uranus and Moon; Uranus north 4° 8'
11—	3:00 am	Conjunction, Venus and Neptune; Venus south 0° 55'
11—	10:50 am	Conjunction, Jupiter and Moon; Jupiter north 5° 44'
13—	4:00 pm	Inferior conjunction, Mercury and Sun; Mercury south 1° 40'
14—	4:03 am	Conjunction, Mars and Moon; Mars north 6° 30'
15—	9:38 am	Conjunction, Mercury and Moon; Mercury north 3° 36'
16—	6:08 am	Conjunction, Neptune and Moon; Neptune north 5° 54'
16—	6:39 pm	Conjunction, Venus and Moon; Venus north 4° 18'
18—	12:16 am	Conjunction, Saturn and Moon; Saturn north 4° 28'
18—	1:00 pm	Mercury in ascending node
21—	11:00 pm	Conjunction, Neptune and Sun
22—	1:00 am	Mercury stationary in Right Ascension
23—	5:00 am	Mercury in perihelion
26—	6:00 am	Quadrature, Uranus and Sun
29—	6:00 am	Mercury greatest elongation west, 18° 33'
30—	5:00 pm	Conjunction, Venus and Saturn; Venus south 1° 58'

AMATEUR'S FORUM

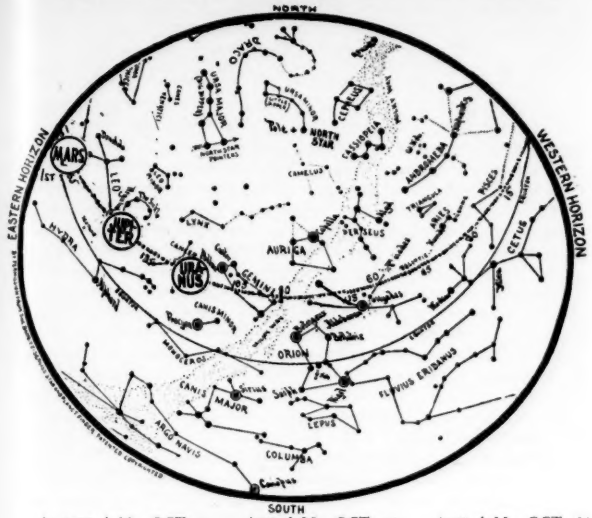
BY IRVING L. MEYER, M. S.

NOVEMBER 1955

THE SUN: crosses Libra into Scorpio. It is now deep in the southern hemisphere, and coming slightly closer as the earth's mildly elliptical orbit carries it to perihelion. Distance the 1st is 92.2 million miles and the 30th is 91.6 million miles.

THE MOON: comes to perigee twice during the month: on the 1st at 225,000 miles distance, and the 30th at 222,000 miles. Apogee occurs on the 17th at 252,000 miles distance.

MORNING SKY MAP FOR OCTOBER



At 5:00 A.M., OCT. 1; 4:00 A.M., OCT. 15; 3:00 A.M., OCT. 31

The Moon's Phases (E.S.T.):

Last quarter	November 6 at 4:56 pm
New Moon	14 at 7:01 am
First Quarter	22 at 12:29 pm
Full Moon	29 at 11:50 am

There will be a partial eclipse of the Moon on the 29th, but it will not be visible in the western hemisphere. The area of visibility will comprise the western Pacific Ocean area, Asia, and Australia. The circumstances of the eclipse are (E.S.T.):

Moon enters penumbra	November 29 at 9:51 am
Moon enters umbra	29 at 11:21 am
Middle of eclipse	29 at 11:59 am
Moon leaves umbra	29 at 12:37 pm
Moon leaves penumbra	29 at 2:08 pm

At maximum, one-eighth of the Moon's diameter will be eclipsed.

MERCURY: will still be visible for the first few days of the month in the early dawn, low in the east. It will appear as a very bright star (magnitude -0.6) to the naked eye, though more or less dimmed by the haze near the horizon. In the telescope it will appear mildly gibbous. It travels from Virgo through Libra into Scorpio, and distance increases from 98 million miles the 1st to 134 million miles the 30th.

VENUE: in the evening sky, moves from Libra through Scorpio, into Sagittarius. It is gradually becoming better spaced for observation, though it still sets soon after the Sun. The most brilliant star-like object in the sky, it is a striking naked eye object. Its magnitude is -3.3, but it is so remote that its apparent diameter is only 11". Distance the 1st is 151 million miles, and the 30th is 142 million miles.

MARS: spends the month in Virgo, in the morning sky. It can be seen in the late morning sky, as a reddish second magnitude star close to the eastern horizon. It is still so remote that it is an unimpressive telescopic object. Distance the 1st is 231 million miles, and the 30th is 216 million miles.

JUPITER: holds forth in Leo in the morning sky, rising shortly after midnight. This giant plant is one of the most fascinating objects in the skies—the smallest telescope, or good binoculars, will reveal its disc and four brightest satellites. Higher magnification will show up the cloud bands across the disc as well as the transits and eclipses of the satellites. On the 15th, magnitude is -1.7, apparent diameter is 37", and geocentric distance 501 million miles.

SATURN: is in the evening sky until the 16th, on which date it is in conjunction with the Sun, and enters the morning sky. In Libra, it is too close to the Sun the entire month to be observable. Distance reaches a maximum of 1015 million miles the 16th.

URANUS: rises shortly before midnight from a point in Cancer. It is rapidly coming onto the evening scene, though at best it is only a moderately interesting object. Barely visible to the naked eye, in the telescope it exhibits a neat 4" diameter greenish disc which is readily made out under magnification of 50 diameters or more. Distance the 15th is 1695 million miles.

NEPTUNE: is in the morning sky in Virgo. This telescopic object is too close to the Sun all month to be observable. Distance the middle of the month is 2901 million miles.

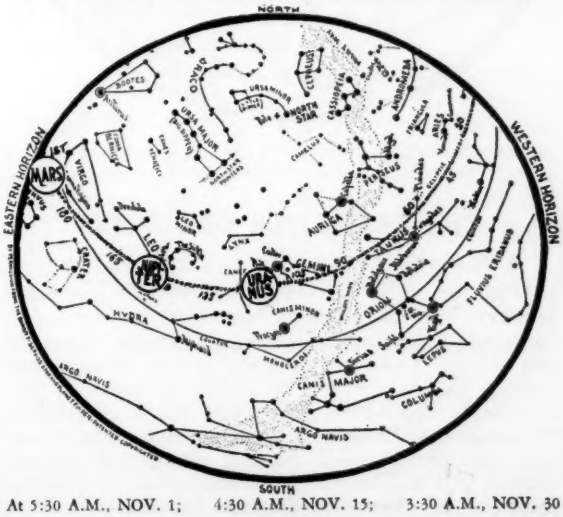
SATELLITES OF JUPITER
OCTOBER

Day	West	East
1	○ 1·	2· ○ ·3 4·
2		○ ·1 ·3! ·2●
3		1· ○ 4·2· 3·
4	○ 3·	2·4· ○ ·1
5		4/3· ·2·1 ○
6	4· ·3	○ 1· ·2
7	4·	·3 ·1 ○ 2·
8	4·	2· 1○· ·3
9	·4	○ ·3 ·1● ·2●
10	·4	1· ○ ·2 3·
11	·4	2· ○ 3· ·1
12	3· ·2 1·	·4 ○
13	3·	○ 2/1· ·4
14	·3 ·1	○ 2· ·4
15	2·	○ 3/1· ·4
16		·2 ○ ·3 ·4 ·1●
17		1·○ ·2 3· 4·
18	○ 2·	○ 1/3· 4·
19		·2 3· 1· ○ 4·
20	3·	○ ·2 3/4
21	·3 ·1	4· ○ 2·
22	4· 2·	○ 1· ·3●
23	4·	·2 ·1 ○ ·3
24	○ 1· 4·	○ ·2 3·
25	·4	○ 1/2· 3·
26	·4	2· 3·1· ○
27	·4 3·	○ ·2 ·1
28	·3 ·4 1·	○ 2·
29	2·	○ 1· ·3● ·4●
30	·2 ·1	○ 4/3
31	1·	○ ·2 3· ·4

Appearance of Jupiter and its satellites at 5:00 A.M., E.S.T. as seen in an inverting telescope

Jupiter is represented by the disc in the center of the chart, and each satellite by a dot and its appropriate number. The direction of the satellite's motion is from the dot toward the numeral. The numeral and light disc at the left margin of the chart indicates a satellite in transit across Jupiter's disc; the numeral and dark disc at the right margin indicates a satellite which is invisible because it is being eclipsed or occulted by Jupiter. This chart must be held upside down if binoculars, opera glasses, or an erecting type telescope is used.

MORNING SKY MAP FOR NOVEMBER



At 5:30 A.M., NOV. 1; 4:30 A.M., NOV. 15; 3:30 A.M., NOV. 30

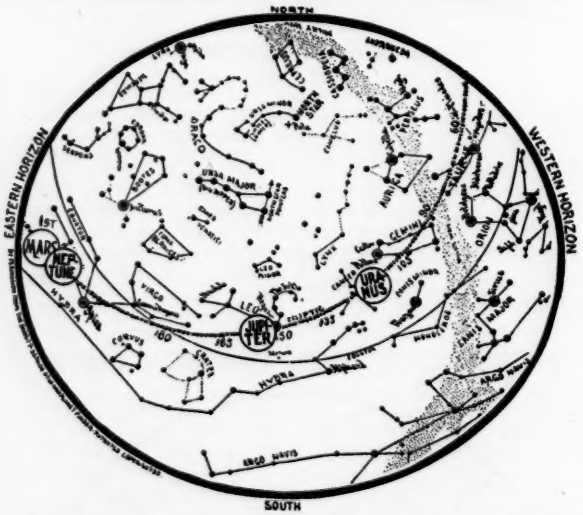
PLANETARY CONFIGURATIONS

NOVEMBER 1955

Eastern Standard Time

Nov.	1— 5:00 am	Venus in descending node
	2—11:00 am	Mercury greatest heliocentric latitude north
	5—11:01 pm	Conjunction, Uranus and Moon; Uranus north 4° 24'
	7— 2:00 am	Conjunction, Mercury and Neptune; Mercury north 0° 18'
	7—11:47 pm	Conjunction, Jupiter and Moon; Jupiter north 6° 11'
	8— 9:00 am	Uranus stationary in Right Ascension
	11— 8:12 pm	Conjunction, Mars and Moon; Mars north 5° 42'
	12— 2:51 pm	Conjunction, Neptune and Moon; Neptune north 5° 52'
	13— 8:21 am	Conjunction, Mercury and Moon; Mercury north 4° 52'
	14— 1:25 pm	Conjunction, Saturn and Moon; Saturn north 4° 7'
	16— 1:49 am	Conjunction, Venus and Moon; Venus south 0° 12'
	16— 6:00 pm	Conjunction, Saturn and Sun
	23—10:00 am	Quadrature, Jupiter and Sun
	23— 9:00 pm	Conjunction, Mercury and Saturn; Mercury south 1° 46'
	26— 9:00 pm	Mercury in descending node
	28— 6:00 am	Conjunction, Mars and Neptune; Mars south 0° 54'
	29	Partial eclipse of the Moon

MORNING SKY MAP FOR DECEMBER



At 5:30 A.M., DEC. 1; 4:30 A.M., DEC. 15; 3:30 A.M., DEC. 31

THE SATELLITES OF JUPITER

With this issue we commence the publication of charts showing the day to day positions of Jupiter's four bright satellites. The charts indicate them by the numbers 1, 2, 3, and 4, which stand for, respectively, Io, Europa, Ganymede, and Callisto. These are bright satellites and could be seen with the naked eye were it not for the overpowering glare of Jupiter. Opera glasses, binoculars and small telescopes will reveal their interesting day to day movements. A six-inch reflector will do a splendid job on their transits, eclipses, and occultations. These charts will be a regular feature of the "MONTHLY EVENING SKY MAP."

SATELLITES OF JUPITER

NOVEMBER

Day	West							East						
1						○	2·	3·				·4		·1●
2				2·	1·3·	○						·4		
3			3·			○	·1					4·		·2●
4			·3		1·	○		2·			4·			
5					3·2·	○	1·		4·					
6				·2	·1	○	4·	·3						
7					4·	○	1·	·2		·3				
8			4·			○		2·	3·					·1●
9	○1·○3·		4·		2·	○								
10		4·		3·		○	·1							·2●
11		·4		·3	1·	○			·2					
12			·4		·3	2·○		·1						
13				·4	·2	·1	○		·3					
14					·4		○	3·1·			·3			
15						·1	○	·4	2·	3·				
16					2·		1·3○·			·4				
17				3·		·2	○	·1				·4		
18				·3		1·	○			·2			·4	
19	○2·				·3		○		·1					·4
20					·2	1·	○		·3				4·	
21							○	·2	1·		·3	4·		
22						·1	○			2·	4·	3·		
23					2·		○	1·4·3·						
24					3·	4·	·2	○						·1●
25				4·3·			1·○			·2				
26			4·		·3		○	2·	·1					
27		4·			2·	1·	○	·3						
28			·4				○	·2	·1		·3			
29				·4			·1	○		2·		3·		
30					·4		2·	○	1·3·					

Appearance of Jupiter and its satellites at 4:30 A.M., E.S.T. as seen in an inverting telescope

AMATEUR'S FORUM

BY IRVING L. MEYER, M. S.

DECEMBER 1955

THE SUN: moves from Scorpio into Sagittarius, and on the 22nd makes its greatest penetration into the southern hemisphere; thereafter its motion will take it gradually northward. It is 91.6 million miles away the first against 91.3 million miles the 31st.

There will be an annular eclipse of the Sun on the 14th, but it will not be visible in the western hemisphere. The path of the annular portion of the eclipse crosses the eastern half of Africa, the Indian Ocean and the Malay Peninsular. The eclipse can be seen as a partial over large areas of Asia, Africa, Europe, the Indian Ocean, and the East Indies.

THE MOON: is farthest from the earth the 15th at 253,000 miles distance; it is closest to the earth the 28th at 222,000 miles distance.

The Moon's Phases (E.S.T.):

Last quarter	December 6 at 3:35 am
New Moon	14 at 2:07 am
First quarter	22 at 4:39 am
Full Moon	28 at 10:44 pm

MERCURY: begins the month in Scorpio, but moves swiftly through this constellation and Sagittarius to the Capricornus boundary. It is in superior conjunction with the Sun on the 4th, thereupon entering the evening sky. By the end of the month it will be far enough to the east of the Sun to be observable in the twilight zone shortly after sunset. At that time its magnitude will be -0.7; more favorably located it would be one of the brightest stars in the sky. Maximum geocentric distance of 135 million miles is reached the 5th.

VENUS: moves from Sagittarius into Capricornus. It is now taking a commanding position in the early evening sky, setting two hours after the sun. While it is about as faint as it ever becomes, magnitude -3.3, it is still brighter than any other starlike object can become. In the telescope it will appear gibbous, and about 11" in diameter. Distance the 1st is 142 million miles, and the 31st is 129 million miles.

MARS: is in the morning sky, and travels from a point close to Neptune, in Virgo, into Libra. It can be observed in the late morning sky, just before dawn. It is still so far from the earth that it is not an impressive sight. It is about magnitude 2. Distance decreases during the month from 215 million miles to 195 million miles. Mars at its closest can come within 36 million miles of the earth.

JUPITER: remains in Leo all month, a few degrees east of Regulus. It rises before midnight and is now well placed for late observers. With moderate optical help, the brighter satellites can be seen, as well as the disc. On the 15th, distance is 457 million miles, magnitude is -1.8, and apparent equatorial diameter is 40".

SATURN: is in the morning sky in Libra, and by the end of the month can be seen in the morning twilight zone, close to the eastern horizon. It is not well placed for observation. Distance the 15th is 1006 million miles.

URANUS: in Cancer all month, is the only readily observable night sky planet. It rises a few hours after the Sun sets, and remains above the horizon all night. However, it is a faint object; so much so, that it can barely be seen with the naked eye, and then the night must be very clear and moonless. Distance the 15th is 1656 million miles.

NEPTUNE: is in Virgo in the morning sky. It can be seen shortly before sunrise, but it is not a naked eye object. Magnitude is 8. It will be much better placed for observation in the spring of 1956. Distance the 15th is 2872 million miles.

SATELLITES OF JUPITER

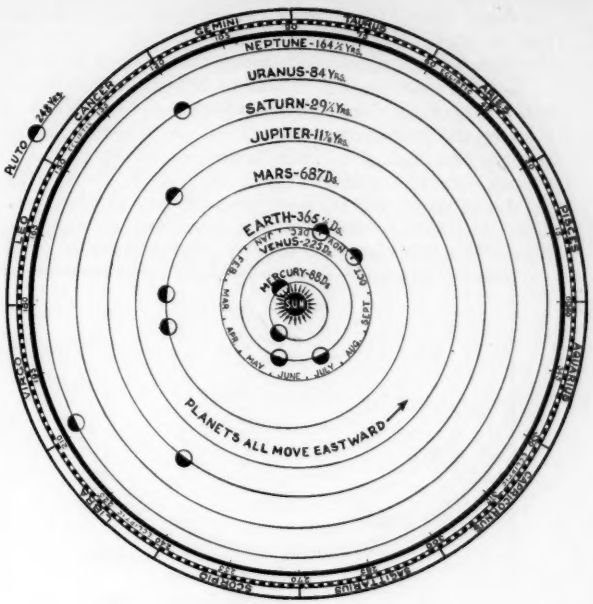
DECEMBER

Day	West	East
1	·2 ·4 ·1 ○ 3·	
2	○1· 3· ○ ·4 ·2	
3	·3 ○ ·12· ·4	
4	2· 1· ○ ·4 ·3●	
5	○ ·1 ·3 ·4 ·2●	
6	·1 ○ 2· 3· 4·	
7	2· ○ 1· 3· 4·	
8	·2 3· ·1 ○ 4·	
9	3· 1○· ·24·	
10	○ 4· ·3 ○ 2· ·1●	
11	4·2· 1· ○ ·3●	
12	4· ·2○ ·1 ·3	
13	4· 1· ○ ·2 ·3	
14	4· 2·○ 1· 3·	
15	·4 ·2 ·3· ○	
16	·4 3· ○ 1· ·2	
17	·3·4 ○ 2· ·1●	
18	2· ·3 ○	
19	·2 ○ ·1 ·4·3	
20	1· ○ ·2 ·3	
21	○2· ○ ·1 3· ·4	
22	○3· ·2 ·1 ○ ·4	
23	3· ○ 4·	
24	·3 ·1○ 2· 4·	
25	○1· ○ 4·	
26	·2 ○ ·1	
27	○ ·2 ·3	
28	4· ○ ·1 3·	
29	4· 2· ·1 3○·	
30	4· 3· ○·2 1·	
31	·4 ·3 ·1 ○ 2·	
32	·4 ·32· 1○·	

Appearance of Jupiter and its satellites at 4:00 A.M., E.S.T. as seen in an inverting telescope

Jupiter is represented by the disc in the center of the chart, and each satellite by a dot and its appropriate number. The direction of the satellite's motion is from the dot toward the numeral. The numeral and light disc at the left margin of the chart indicates a satellite in transit across Jupiter's disc; the numeral and dark disc at the right margin indicates a satellite which is invisible because it is being eclipsed or occulted by Jupiter. This chart must be held upside down if binoculars, opera glasses, or an erecting type telescope is used.

HELIOCENTRIC POSITIONS OF THE PLANETS, NOVEMBER



PLANETARY CONFIGURATIONS

DECEMBER 1955

Eastern Standard Time

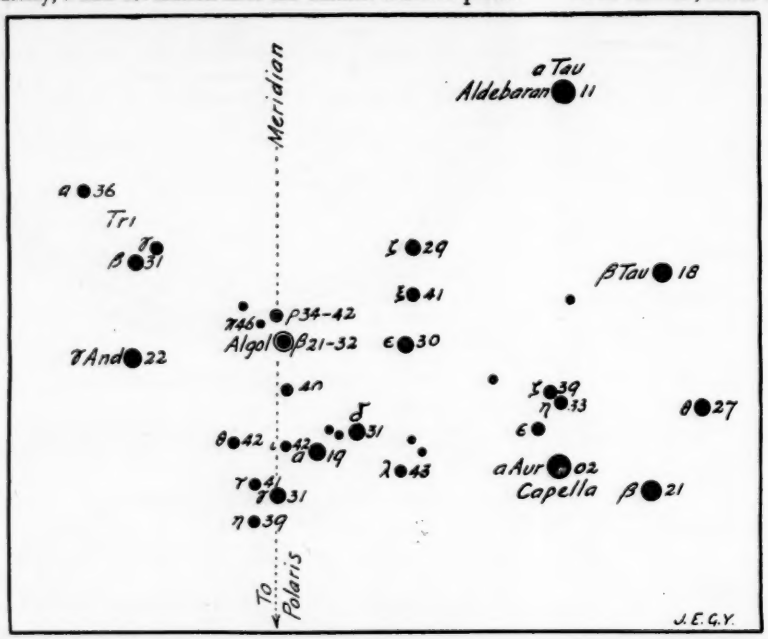
Dec.	3— 6:10 am	Conjunction, Uranus and Moon; Uranus north 4° 29'
	4— 9:00 am	Superior conjunction, Mercury and Sun; Mercury south 0° 55'
	5—10:04 am	Conjunction, Jupiter and Moon; Jupiter north 6° 29'
	5— 3:00 pm	Venus in aphelion
	6— 4:00 am	Mercury in aphelion
	9—10:19 pm	Conjunction, Neptune and Moon; Neptune north 5° 52'
	10—12:35 pm	Conjunction, Mars, and Moon; Mars north 4° 18'
	12— 1:50 am	Conjunction, Saturn and Moon; Saturn north 3° 51'
	14	Annular eclipse of the Sun
	14— 2:41 pm	Conjunction, Mercury and Moon; Mercury south 2° 44'
	16— 3:03 pm	Conjunction, Venus and Moon; Venus south 4° 38'
	18— Noon	Jupiter stationary in Right Ascension
	22—10:12 am	Sun enters Capricornus; Solstice
	26— Noon	Mercury greatest heliocentric latitude south
	28— 1:00 am	Venus greatest heliocentric latitude south
	30— 3:03 pm	Conjunction, Uranus and Moon; Uranus north 4° 25'

Please notify the "MONTHLY EVENING SKY MAP" promptly of change of address, as very often the Post Office is unable to furnish us with the new one. Your notice should indicate your old address as well as the new.

ALGOL—THE "DEMON STAR"

Algol (Beta Persei) has been known to vary in brightness at least since the 17th century; in fact, because the Arabian astronomers of much earlier times named it Al-Gol —The Demon—there is reason to believe that they had noticed its variability. Algol, rather than a "demon" is actually the best-known example of an eclipsing binary system—two stars, one much brighter than the other, revolving around a common center of gravity. Thus, when the darker member of the pair comes between the earth and its brighter companion, the system diminishes in brightness. Naturally, a half revolution later the dimmer member passes behind the brighter, and there is a secondary, but much less noticeable, decline in brightness.

Algol shines normally at a magnitude of 2.2. It fades, in a period of about five hours, to magnitude 3.5, then commences to brighten and in about five more hours returns to magnitude 2.2. The period between minima is 2 days 20 hours 49 minutes. Our chart shows Algol and certain neighboring stars for comparison, the number next to the star representing magnitude (in tenths, without the decimal point). The magnitudes shown for Algol have been revised since the chart was drawn. Note that at its brightest this famous star will appear the same as Gamma Andromedae; at its faintest, about the same as Alpha Trianguli.



MINIMA OF ALGOL, 1955
(Eastern Standard Time)

October	1—11:59 am
	4— 8:47 am
	7— 5:36 am
	10— 2:25 am
	12—11:13 pm
	15— 8:02 pm
	18— 4:51 pm
	21— 1:39 pm
	24—10:28 am
	27— 7:17 am
	30— 4:06 am
November	2—12:55 am
	4— 9:44 pm
	7— 6:32 pm
	10— 3:21 pm
	16— 8:59 am
	19— 5:48 am
	22— 2:37 am
	24—11:26 pm
	27— 8:15 pm
	30— 5:04 pm
December	3— 1:53 pm
	6—10:42 am
	9— 7:31 am
	12— 4:20 am
	15— 1:09 am
	17— 9:58 pm
	20— 6:48 pm
	23— 3:37 pm
	26—12:25 pm
	29— 9:14 am

THE GOLDEN ANNIVERSARY OF THE "MAP"

The "MONTHLY EVENING SKY MAP" is fifty years old. We are proud to achieve this milestone, accomplished in the face of depressions and the shortages of two wars, and feel we should "stick out our chests" to the extent of giving our readers some insight into our past history and future plans.

The "MONTHLY EVENING SKY MAP" came into being as the result of the love for astronomy of Leon Barritt. Mr. Barritt was one of the earliest pioneers in newspaper cartooning, his editorial cartoons appearing in practically every New York daily newspaper in the latter part of the 19th century. Stricken with a partial paralysis of his right hand at around the turn of the century, Mr. Barritt turned to his hobby and established a monthly syndicated article on astronomy, appearing in many newspapers in the United States and Canada. He illustrated it with a star chart. Newspapers did not achieve any great technical success in the printing of the star chart, but the articles were popular. There were requests for charts printed on better paper and to meet this demand Mr. Barritt turned out a limited number on fine paper. Their success led to expansion which soon resulted in the birth of the "MONTHLY EVENING SKY MAP."

Mr. Barritt set the aim of this publication to the promotion of interest and education in astronomy. We have never deviated from this policy, and have recently begun the first of a series of moves designed to produce a still finer magazine. This involved placing the publishing of the "MAP" under Mr. Irving L. Meyer, who has been actively associated with the "MAP" for two decades, and removal of the office of publication to Rutherford, N. J. Other plans will develop from this move; the "MAP" will roll from the press on the first day of the month preceding date of issue, and should reach subscribers about two weeks before issue date. To further this end, Addressograph equipment has been added. The next move, which we hope confidently will be forthcoming very shortly, will be to restore the "MAP" to bi-monthly status. We feel this is the most flexible frequency of publication, and will not only give the magazine better physical balance but will enable us to do a satisfactory job on spot astronomical news.

Everything that the "MONTHLY EVENING SKY MAP" has accomplished in its first half century of existence is due to the loyalty of its subscribers throughout the world. We take this opportunity to thank you, one and all, for without your support and constructive criticism we would not now be embarking on our second half-century.

—MRS. LEON BARRITT

SEASONS GREETINGS—To Our Readers

The Christmas season will soon be upon us once again—that wonderful season of warmth and cheer. We at the "MAP" take this opportunity to wish you the happiest and cheeriest holiday season, and to extend our best wishes for the New Year.

MRS. LEON BARRITT
IRVING L. MEYER

A MERCATOR PROJECTION OF THE STAR FIELD FOR 50° NORTH AND 50° SOUTH OF THE EQUATOR

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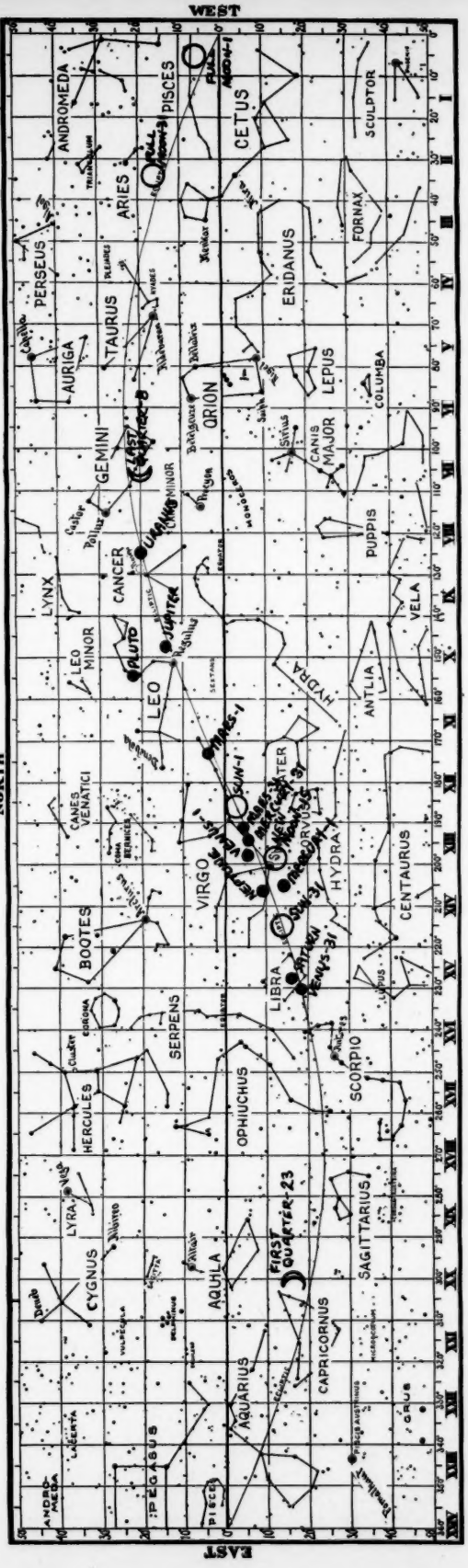
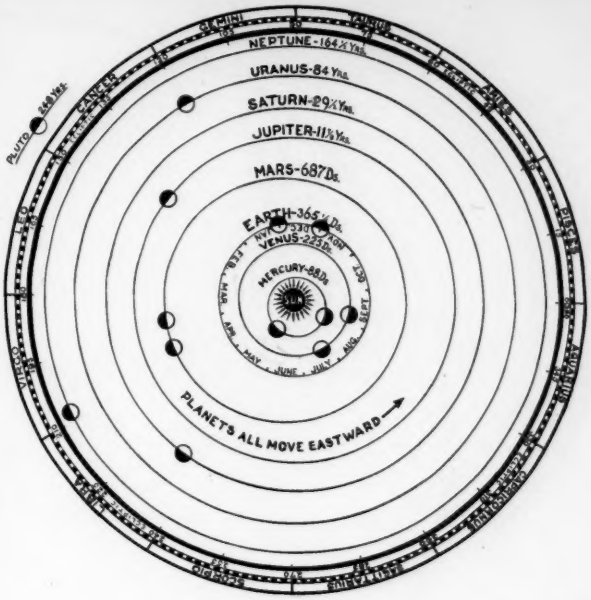
Showing also the position of the Sun at the beginning and ending of the month and the position of the Moon at its several phases.



HELIOCENTRIC POSITIONS OF THE PLANETS, DECEMBER



AUTUMN METEOR SHOWERS

Some of our major showers occur during the fall months. The first of note is that of the Orionids, which make their appearance around October 19th. They radiate from a point a little north and east of Betelgeuse, in Orion, and are characterized by short, swift streaks.

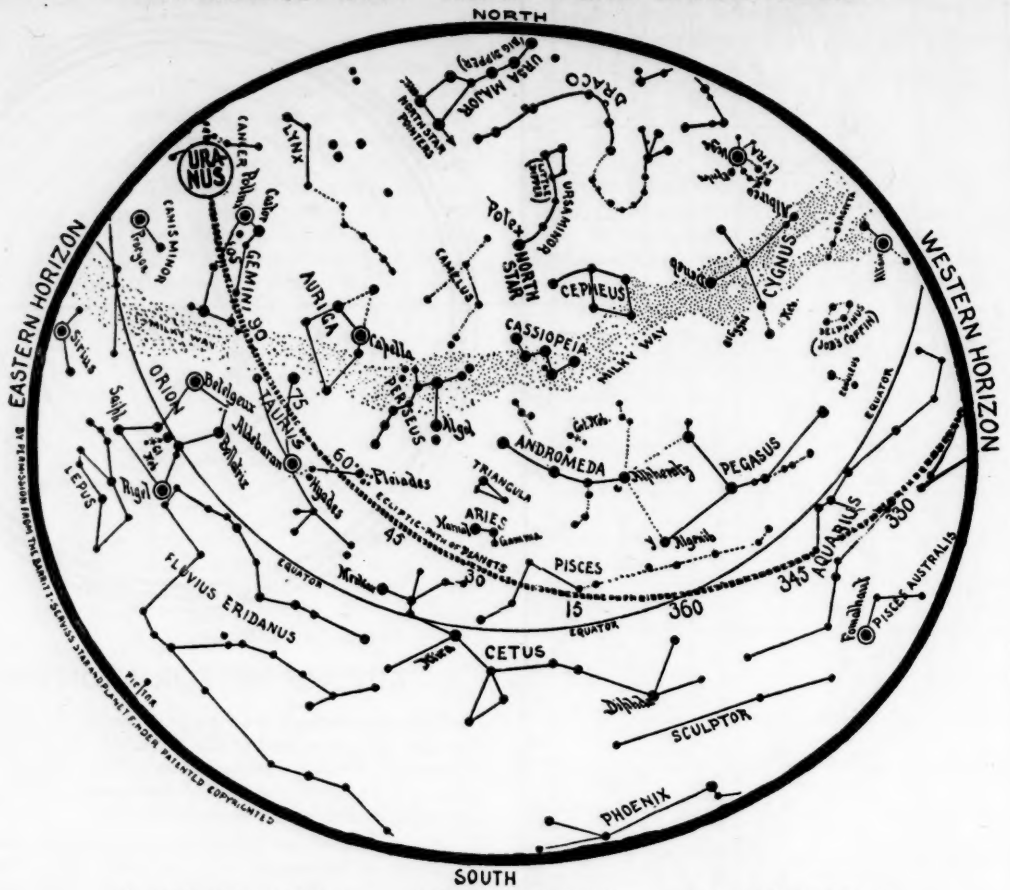
A very famous and rich shower, the Leonids, reaches its maximum on November 14th and 15th. These very swift meteors radiate from the Sickle of Leo. They have been pretty well proven to be the meteoric remains of Tempel's comet of 1865, as their orbit coincides with that of the comet.

Another shower of cometary origin occurs in November, roughly between the 17th and 27th. A comet discovered by Biela in 1826 was found to have a period of revolution around the Sun of about 6½ years. When it was observed at a subsequent return, in 1846, it was found to have divided in two; at its next return the components were more widely separated. It was never seen again, but each year we are visited by a meteor shower, known as the Andromedids, which are accepted as being the debris left in the orbit by the comet. In contrast to the Orionids and Leonids, these are very slow-moving meteors, and often leave a train. They radiate from a point somewhat north and west of Gamma Andromedae.

December brings the Geminids, another shower of swift meteors. They radiate from a point a few degrees west of Castor in Gemini, and are most abundant on the 11th and 12th.

An observer should, on the dates mentioned, watch the areas of the radiant points, and he will be rewarded by the sight of many fine meteors. The radiant point is the position among the stars from which the meteors of a particular shower appear to diverge, much like the hub of a wheel and its spokes. Many more shooting stars will be seen in the hours from midnight to dawn than before midnight, as in the former case the observer is on that portion of the earth facing the direction of motion of the earth around the Sun, and there is a tendency to "sweep in" meteoric particles.

EVENING SKY MAP FOR DECEMBER



AT 9:00 P.M., DEC. 1 8:00 P.M., DEC. 15 7:00 P.M., DEC. 31

Face South and hold the Map overhead, the top North, and you will see the stars and planets just as they appear in the heavens. The arrow through the two stars in the bowl of the Big Dipper points to the North Star, the star at the end of the handle of the Little Dipper. This map is arraanged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitudes in Europe.

COMET VISIBILITY

The year 1955 has been very productive for comet hunters. As of the time we go to press, the Harvard College Observatory has announced eight discoveries. This number in itself is not unusual, as comets in varying numbers are discovered every year. But 1955 has proven exceptional in that two discoveries reached naked-eye visibility. In the following discussion of recent comets they will be designated by the name of their discoverer and their provisional designation (year and alphabetic letter). This provisional designation is assigned in order of discovery in any year, and is superseded later by the year and Roman numeral signifying the order in which the comet came to perihelion (closest to the Sun) during that year.

Comet Mrkos (1955e) was discovered on June 14th, and at that time was described as a comet with a central nucleus, a tail more than a degree (or twice the diameter of the Moon) in length, and of magnitude 5. This means that at discovery this comet was visible to the naked eye. When it was discovered it was a few degrees west of Capella in Auriga. In the space of a month it travelled rapidly through the sub-circumpolar region, moving progressively through Lynx and Ursa Major. When discovered, it was already past perihelion, which had occurred on June 4th.

Comet 1955f was discovered independently a day apart, first by Bakharev of Stalinabad, Russia on July 13th, and then on the 14th by Lewis MacFarlane and Karl Krienke of Seattle, Washington. All discoverers, according to the Harvard College Observatory, described the appearance as diffuse, with no mention of a tail, and of the eighth magnitude. At that time it was at the western edge of the Great Square of Pegasus, midway between Alpha and Beta Pegasi. The first announced information concerning the computation of the elements of the orbit of this comet came from the Leuschner Observatory of the University of California. They indicated perihelion passage on July 11th, at a distance of 133 million miles from the Sun. During July and August it moved sharply northward, retrograding slightly, passing through Lacerta and Cygnus.

Comet Honda (1955g) was discovered by Honda of the Kwasan Observatory, on July 29th, announcement of the discovery being made by Harvard from a Copenhagen dispatch. The comet was then in Orion, northwest of Beta Orionis, magnitude 8, and was described as a diffuse object with a central condensation. Later observations were made in rapid order—by the 4th of August it was well above the equator, moving almost directly north, and was of the 7th magnitude. The University of California computed parabolic elements of its orbit, which yielded predicted positions for the summer which showed a continuation of its almost direct northerly motion, and indicated perihelion passage on August 3rd. Constant brightening was indicated, with

(continued on page 11)

COMET VISIBILITY—*(continued from page 10)*

a predicted maximum magnitude of 5.6 at the middle of August. At its closest (August 18th) it was 26 million miles from the earth. At its closest approach to the Sun, it came within the earth's orbit. Comet Honda's motion took it high in the north circumpolar region, through the constellation Ursa Minor; it passed very close to the bowl of the Little Dipper.

The "MONTHLY EVENING SKY MAP" will continue to publish the latest news of comets, and our charts will show the positions of any comets bright enough to be observable with amateur equipment.

IS VENUS HABITABLE?—*(continued from page 3)*

We appear to be on the verge of solving at least a portion of this vexing question. We feel that R. J. N.'s note in the "Journal of the Royal Astronomical Society of Canada" sums up our progress in eminently clear-cut fashion:

THE POLE OF ROTATION OF VENUS

Markings on the bright disk of Venus are difficult to detect. Many of the markings which have been reported by visual observers are thought to be of physiological origin. About thirty years ago an extensive photographic study of the elusive markings was made by F. E. Ross using the 60-inch telescope at Mount Wilson. Ross found bright and dark cloud formations which were most conspicuous on ultra-violet photographs, weak on ordinary blue photographs and invisible on red and infra-red photographs. However, the markings were far from permanent and no period of rotation could be deduced from them.

Gerard P. Kuiper, of Yerkes and McDonald Observatories, has done the most recent work on this planet (*Ap.J.*, vol. 120, p. 603, 1954). Using the 82-inch reflector in Texas equipped with an enlarging camera giving a scale of 2.1 seconds of arc per millimetre, he obtained daytime photographs of the planet in violet light.

Kuiper's photographs show bands, usually three bright and three dark bands, comparable in width and slightly curved, suggesting that they may be parallel to the planet's equator. These bands have been used to determine the position of the pole of rotation of Venus. From an analysis of these photographs it appears that the pole is pointed towards R.A. 3h 32m, Dec. +81° in Cepheus. Using this along with the known orientation of the orbital plane of Venus, Kuiper concluded that the equator is tilted by 32° to the plane of the orbit, with an uncertainty in this value of about 2°. (The corresponding angle for the earth is 23½°).

The actual period of rotation is still not known. However, from the stability of the bands Kuiper infers that the planet is rotating fairly rapidly, in a period of a few weeks at most. This corroborates conclusions reached by observers at Mount Wilson because the observed small temperature difference between sunlit and dark hemispheres indicate a period of rotation not much longer that a month, and spectroscopic observations rule out a period of less than a day. Kuiper is continuing an intensive observing programme of the planets and may be able to solve this problem before long.

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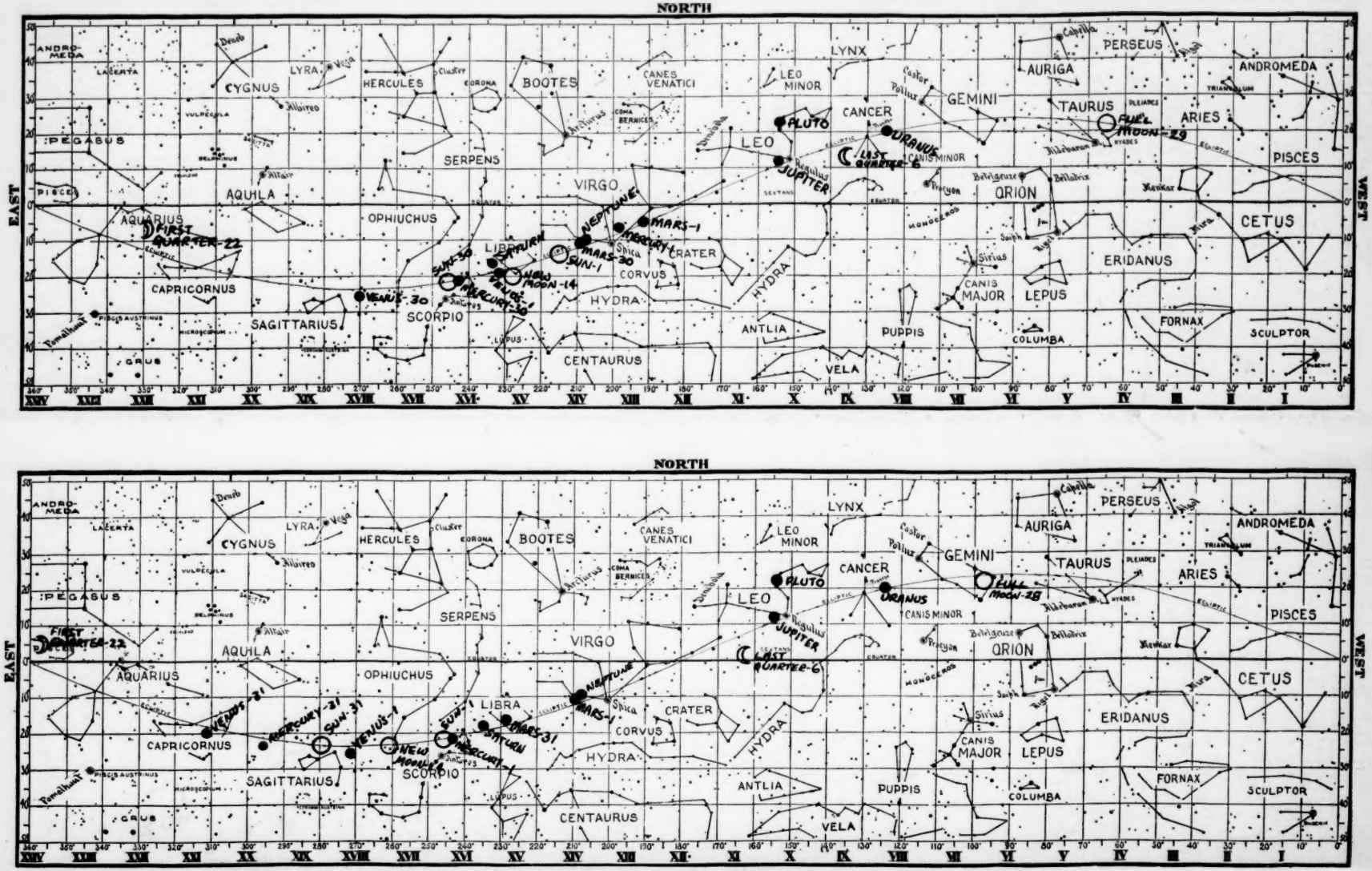

Nov. 5 Oct. 22 Oct. 5 Sept. 20 Sept. 5 Aug. 20 Aug. 5 July 20 July 5 June 20 June 5 May 20 May 5 Apr. 20 Apr. 5 Mar. 20 Mar. 5 Feb. 18 Feb. 2 Jan. 20 Jan. 5 Dec. 20 Dec. 5 Nov. 20

THE DATE BELOW EACH NUMERAL WILL SHOW WHEN THAT SECTION OF THE MAP WILL BE ON THE MERIDAN—DUE SOUTH—AT 9 P.M. OR AN HOUR EARLIER FOR EACH NUMERAL WEST OF THIS DATE AND AN HOUR LATER FOR EACH NUMERAL EAST.

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